

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:) Group Art Unit: Unknown
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KAWASE; HORIGUCHI; KAWAHITO) Examiner: Unknown
)
Serial No. Continuation of)
parent appln. S.N. 10/151,825)
)
Filed: Concurrently herewith)

For: **FLOW-AND-LEVELING AGENTS FOR WATERBORNE
COATINGS**

Appendix B

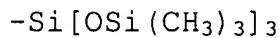
Please amend the claims as indicated according to the revision to 37 C.F.R. § 1.121 concerning a manner for making claim amendments.

Claims 1-12 (Cancelled)

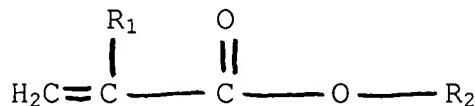
13 (New) A method for imparting flow-and-leveling properties to a water base coating comprising the step of: adding a trimethylsilyl group-containing copolymer obtained by copolymerizing a reactive monomer (A) having a trimethylsilyl group represented by a structural formula:

-Si(CH₃)₃

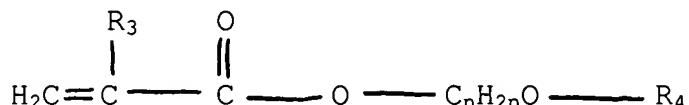
in a molecular structure and/or a reactive monomer (B) having a trimethylsilyl group in the form of a tris(trimethylsiloxy)silyl group represented by a structural formula:



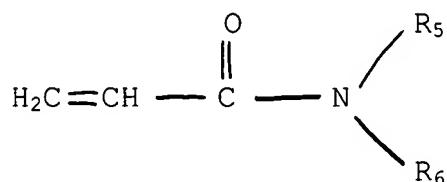
in a molecular structure with a (meth)acrylic acid ester (C) represented by the formula:



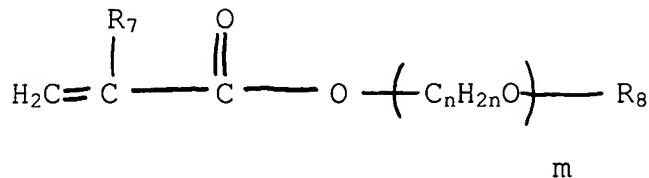
wherein R_1 represents a hydrogen atom or methyl, and R_2 represents an alkyl group having 1 to 12 carbon atoms, and/or a (meth)acrylic acid ester (D) represented by the formula:



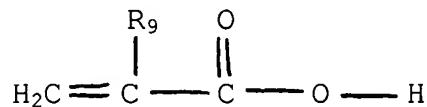
wherein R_3 represents a hydrogen atom or methyl; R_4 represents an alkyl group having 1 to 18 carbon atoms; and n represents an integer of 2, 3 or 4, and acrylamide (E) represented by the formula:



wherein R₅ and R₆ each represent a hydrogen atom or an alkyl group having 1 to 8 carbon atoms, and/or a (meth)acrylic acid ester (F) represented by the formula:



wherein R₇ represents a hydrogen atom or methyl; R₈ represents a hydrogen atom or an alkyl group having 1 to 18 carbon atoms; m represents an integer of 2 to 100, and n represents an integer of 2, 3 or 4; and $-(C_nH_{2n}O)_m-$ means that 2 to 100 units of only one kind of a glycol unit out of three kinds of the glycol units in which n is 2, 3 and 4 are present and that total 2 to 100 units of two or three kinds of the glycol units out of the three kinds of the above glycol units are present, and/or a (meth)acrylic acid (G) represented by the formula:



wherein R₉ represents a hydrogen atom or methyl, wherein the above trimethylsilyl group-containing copolymer contains a trimethylsilyl group originating in the monomer (A) and/or the monomer (B) in a proportion of 2 to 64% by weight, a

copolymerization unit originating in the (meth)acrylic acid ester (C) and/or the (meth)acrylic acid ester (D) in a proportion of 2% by weight or more, a copolymerization unit originating in the acrylamide (E) and/or the (meth)acrylic acid ester (F) and/or the (meth)acrylic acid (G) in a proportion of 5% by weight or more, and it has a number average molecular weight of 500 to 30000, to the water base coating.

14. (New) A method for imparting flow-and-leveling properties to a water base coating comprising the step of: adding a trimethylsilyl group-containing copolymer obtained by reacting a copolymer of a multifunctional monomer into which a trimethylsilyl group or a tri(trimethylsiloxy)silyl group can be introduced, the (meth)acrylic acid ester (C) and/or the (meth)acrylic acid ester (D) described in claim 1 and the acrylamide (E) and/or the (meth)acrylic acid ester (F) and/or the (meth)acrylic acid (G) described in claim 1 with a trimethylsilyl group-containing compound and/or a tri(trimethylsiloxy)silyl group-containing compound, wherein the above trimethylsilyl group-containing copolymer contains a trimethylsilyl group in a proportion of 2 to 64% by weight, a

copolymerization unit originating in the (meth)acrylic acid ester (C) and/or the (meth)acrylic acid ester (D) in a proportion of 2% by weight or more, a copolymerization unit originating in the acrylamide (E) and/or the (meth)acrylic acid ester (F) and/or the (meth)acrylic acid (G) in a proportion of 5% by weight or more and it has a number average molecular weight of 500 to 30000, to the water base coating.

15. (New) A method for imparting flow-and-leveling properties to a water base coating comprising the step of: adding a trimethylsilyl group-containing copolymer obtained by copolymerizing the monomer (A) and/or the monomer (B) described in claim 1, the (meth)acrylic acid ester (C) and/or the (meth)acrylic acid ester (D) described in claim 1 and the acrylamide (E) and/or the (meth)acrylic acid ester (F) and/or the (meth)acrylic acid (G) described in claim 1 with a reactive monomer (H) capable of being copolymerized with them, wherein the above copolymer contains a trimethylsilyl group originating in the monomer (A) and/or the monomer (B) in a proportion of 2 to 64% by weight, a copolymerization unit originating in the (meth)acrylic acid ester (C) and/or the (meth)acrylic acid ester

(D) in a proportion of 2% by weight or more, a copolymerization unit originating in the acrylamide (E) and/or the (meth)acrylic acid ester (F) and/or the (meth)acrylic acid (G) in a proportion of 5% by weight or more, a copolymerization unit originating in the monomer (H) in a proportion of not exceeding 50% by weight, and it has a number average molecular weight of 500 to 30000, to the water base coating.

16. (New) A method for imparting flow-and-leveling properties to a water base coating comprising the step of: adding a trimethylsilyl group-containing copolymer obtained by reacting a copolymer of the multifunctional monomer described in claim 2, the (meth)acrylic acid ester (C) and/or the (meth)acrylic acid ester (D) described in claim 1, the acrylamide (E) and/or the (meth)acrylic acid ester (F) and/or the (meth)acrylic acid (G) described in claim 1 and a reactive monomer (H) capable of being copolymerized with them with a trimethylsilyl group-containing compound and/or a tris(trimethylsiloxy)silyl group-containing compound, wherein the above trimethylsilyl group-containing copolymer contains a trimethylsilyl group in a proportion of 2 to 64% by weight, a

copolymerization unit originating in the (meth)acrylic acid ester (C) and/or the (meth)acrylic acid ester (D) in a proportion of 2% by weight or more, a copolymerization unit originating in the acrylamide (E) and/or the (meth)acrylic acid ester (F) and/or the (meth)acrylic acid (G) in a proportion of 5% by weight or more, a copolymerization unit originating in the monomer (H) in a proportion of not exceeding 50% by weight, and it has a number average molecular weight of 500 to 30000, to the water base coating.

17. (New) The method as described in any of claims 13 to 16, wherein the monomer (A) and/or the monomer (B) are selected from the group consisting of 3-methacryloxypropyltrimethylsilane, 3-methacryloxypropyltris(trimethylsiloxy)silane, and vinyltris(trimethylsiloxy)silane.

18. (New) The method as described in any of claims 13 to 16, wherein the trimethylsilyl group-containing compound and/or the tris(trimethylsiloxy)silyl group-containing compound are selected from the group consisting of trimethylchlorosilane, hexamethyldisilazane, tris(trimethylsiloxy)hydrosilane, 3-

aminopropyltris(trimethylsiloxy)silane and 3-mercaptopropyltris(trimethylsiloxy)silane.

19. (New) The method as described in any of claims 13 to 16, wherein the (meth)acrylic acid ester (C) is selected from the group consisting of methyl (meth)acrylate, ethyl(meth)acrylate, normal propyl (meth)acrylate, isopropyl (meth)acrylate, normal butyl (meth)acrylate, isobutyl (meth)acrylate, tertiary butyl (meth)acrylate, normal octyl (meth)acrylate, 2-ethylhexyl (meth)acrylate, isononyl (meth)acrylate and lauryl (meth)acrylate.

20. (New) The method as described in any of claims 13 to 16, wherein the (meth)acrylic acid ester (D) is selected from the group consisting of 2-methoxyethyl (meth)acrylate, 2-ethoxyethyl (meth)acrylate, 2-butoxyethyl (meth)acrylate, 2-octoxyethyl (meth)acrylate, 2-lauroxyethyl (meth)acrylate, 2-stearoxyethyl (meth)acrylate, 3-methoxybutyl (meth)acrylate and 4-methoxybutyl (meth)acrylate.

21. (New) The method as described in any of claims 13 to 16, wherein the acrylamide (E) is selected from the group consisting of acrylamide, N-methacrylamide, N-ethylacrylamide, N-isopropylacrylamide, N-normal butylacrylamide, N-tertiary butylacrylamide, N-2-ethylhexylacrylamide, N,N-dimethylacrylamide, N,N-diethylacrylamide and diacetoneacrylamide.

22. (New) The method as described in any of claims 13 to 16, wherein the (meth)acrylic acid ester (F) is selected from the group consisting of ethylcarbitol (meth)acrylate, methoxypolyethylene glycol (meth)acrylate, methoxypolypropylene glycol (meth)acrylate, methoxypoly(ethylene-propylene) glycol (meth)acrylate, methoxypoly(ethylene-tetramethylene) glycol (meth)acrylate, butoxypoly(ethylene-propylene)glycol (meth)acrylate, octoxypoly(ethylene-propylene) glycol (meth)acrylate, lauroxypolyethylene glycol (meth)acrylate and lauroxypoly(ethylene-propylene) glycol (meth)acrylate.

23. (New) The method as described in claim 14 or 16, wherein the multifunctional monomer is selected from the group consisting of (meth)acrylic acid, 2-hydroxyethyl (meth)acrylate, glycidyl (meth)acrylate, 2-isocyanaethyl (meth)acrylate, those in which R₈ is a hydrogen atom in the formula representing the (meth)acrylic acid ester (F), alkyl glycidyl ether, 2-hydroxyethyl vinyl ether and 4-hydroxybutyl vinyl ether.

24. (New) The method as described in claim 15 or 16, wherein the monomer (H) is selected from the group consisting of tridecyl (meth)acrylate, myristyl (meth)acrylate, hexadecyl (meth)acrylate, stearyl (meth)acrylate, behenyl (meth)acrylate, cyclohexyl (meth)acrylate isobonyl (meth)acrylate, nonylphenoxyethylene glycol (meth)acrylate; styrene, α -methylstyrene, chlorostyrene, vinyltoluene; vinyl acetate, vinyl propionate, diallyl phthalate; ethyl vinyl ether; normal propyl vinyl ether, isopropyl vinyl ether, normal butyl vinyl ether, isobutyl vinyl ether, tertiary butyl vinyl ether, normal octyl vinyl ether, 2-ethylhexyl vinyl ether, methyl vinyl ether, cyclohexyl vinyl ether; vinyl chloride; vinylidene chloride;

chloroprene; propylene; butadiene; isoprene; and
fluoroolefinmaleimide.